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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/540,289	03/31/2000	Mitsuhiro Agehari	P/2041-47	9847
7590	06/27/2005		EXAMINER	
STEVEN I. WEISBURD DICKSTEIN SHAPIRO MORIN & OSHINSKY 1177 AVENUE OF THE AMERICAS 41ST FLOOR NEW YORK, NY 10036-2714			TRAN, KHANH C	
			ART UNIT	PAPER NUMBER
			2631	

DATE MAILED: 06/27/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/540,289

Applicant(s)

AGEHARI, MITSUHIRO

Examiner

Khanh Tran

Art Unit

2631

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 April 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 2 and 4 is/are rejected.
- 7) ☒ Claim(s) 3 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 31 March 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date: _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

1. The Amendment filed on 04/08/2005 has been entered. Claims 1-4 are pending in this Office action.

Response to Arguments

2. Applicant's arguments with respect to claim 1 have been considered but are moot in view of the new ground(s) of rejection.

3. The Examiner reintroduces the cited reference van Nee (US 6,175,550 B1), which had been relied on for the rejection of claims 1-2 and 4 in the Final Office action mailed on 06/24/2005. Upon further consideration, a new ground(s) of rejection is made and fully explained below.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-2 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Van Nee U.S. Patent 6,175,550 B1.

Regarding claim 1, Van Nee invention is directed to OFDM modulation schemes that are suitable to provide a wide range of information transfer rates in a wide range of physical environments. Figure 1 illustrates an OFDM transmitter 10 having signal circuitry 11 which receives a data stream of data bits from a data source 12. In column 3, line 66 through column 4, line 17, the coding block 14 receives the data stream and partitions the data stream into successive groups or blocks of bits. The coding block 14 introduces redundancy for forward error correction coding. The blocks of coded data bits are input into N-points complex Inverse Fast Fourier Transform (IFFT) 16. The output of the IFFT 16 is parallel-to-serial converted to produce an OFDM symbol. The RF transmitter 22 transmits the OFDM symbol through an antenna 24. Van Nee further discloses in certain embodiments according to other aspects of the present invention, variable data rate with OFDM transmitter are achieved by using different forward error correction coding schemes and/or variable modulation schemes for each carrier as controlled by a dynamic control circuitry 15. Clearly, each combination of coding scheme and modulation scheme produces different transmission data rate. The dynamic control circuitry 15 is also responsive to the external settings as shown in figure 1. The clock 17 provides a time base for the coding 14, the IFFT 16, the cyclic prefix and windowing 18, and the D/A 20.

Van Nee does not show in figure 1 a data processing means for reading in data having a bit width suitable for the modulation system corresponding to the input modulation mode.

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However, as mentioned above, the coding block 14 receives data stream and partitions the data stream into successive groups or blocks of bits, hence, it would have been obvious for one of ordinary skill in the art at the time of the invention that the coding block 14 includes a data processing section in the front end to read in data having a bit width suitable for the modulation system. Furthermore, the dynamic control circuitry 15 is also responsive to the external settings as shown in figure 1 to set the coding rate / modulation scheme for a particular data rate.

In column 4, lines 55 to 67, in one particular embodiment, van Nee teaches that the control circuitry 15 scales operating parameters and characteristics; such as transmission rate, by changing the symbol duration T_s , while keeping the number of carriers N constant. In this particular embodiment, the control circuitry 15 accomplishes this by controlling the clock 17 to adjust the time base to the IFFT 16.

In the aforementioned particular embodiment, van Nee does not teach the feature “allow a transmission operation with a single input clock signal for any input modulation mode” as claimed in the preamble.

However, in column 3, lines 20-35, van Nee expresses that the scaleable OFDM system can scale operating parameters and/or characteristics in various ways. For example, to dynamically scale the transmission rate, the scaleable OFDM system can dynamically adjust the symbol duration, coding rate, the number of bits per symbol per carrier and/or the number of

carriers depending upon the required or desired operating parameters and/or characteristics. In light of the foregoing teachings, it would have been obvious for one of ordinary skill in the art at the time of the invention that the scaleable OFDM system as taught by van Nee can be modified to increase number of bits per symbol per carrier and/or the number of carriers to achieve higher transmission rate. Motivation is van Nee teachings as recited above. By implementing number of bits per symbol per carrier and/or the number of carriers, the symbol duration the symbol duration T_s is kept constant, and clock 17 as shown in figure 1 is kept constant for coding block 14, IFFT block 16, D/A converter 20. Therefore, van Nee teachings, as discussed above, encompass the claimed feature “allow a transmission operation with a single input clock signal for any input modulation mode” claimed in the preamble of the application claim.

Regarding claim 2, as recited in claim 1, the coding block 14, including a data processing section in the front end to read in data, receives the data stream and partitions the data stream into successive groups or blocks of bits. Van Nee does not show explicitly a transmission memory for storing transmission data of m-bit strings and a memory for temporarily storing the data of n-bit strings as claimed. As well known in the art, data is read in and always buffered at the front end. Hence, as would be appreciated by one of ordinary skill in the art, the coding block 14, as taught by Van Nee, would also include a buffer (or memory) large enough to hold transmission data of

m-bit strings. As recited above, the coding block 14 partitions the data stream into successive groups or blocks of n-bits. Evidently, the coding block 14 converts data of m-bit strings into groups or blocks of n-bit strings to be used for coding processing. The coding block 14 would inherently include a memory for temporarily storing the data of n-bit strings.

Regarding claim 4, the control circuit 15, shown in figure 1 (column 4, line 58 through column 6, line 10), scales operating parameters and characteristics by the controlling the clock 17 to adjust the time base clock. Clearly, the control circuit 15 dynamically determines the transmission timing as claimed. The blocks of coded data bits are input into a complex IFFT 16 for producing an OFDM symbol. Hence, the complex IFFT 16 as taught by Van Nee corresponds to the modulation data allocation circuit as claimed in the patent application. Lastly, a RF transmitter 22 transmits the modulation data according to the time base clock.

Allowable Subject Matter

5. Claim 3 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Khanh Tran whose telephone number is 571-272-3007. The examiner can normally be reached on Monday - Friday from 08:00 AM - 05:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mohammad Ghayour can be reached on 571-272-3021. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

KCT

Khanh Cong Tran
Examiner

06/24/2005

KHANH TRAN